Topical Antibiotic for Faster Wound Healing

Ref. No. E-294-2011

Keywords: Therapeutic, wound healing, immunostimulation, CpG motifs, TLR7, TLR9, and ODN.

Summary: The National Cancer Institute Laboratory of Experimental Immunology seeks parties interested in collaborative research to further co-develop a topical antibiotic formulation to accelerate wound healing.

Technology: Currently available topical antibiotic formulations effectively eliminate bacteria at a wound site.Eliminating bacteria in the wound also eliminates the molecular signals present in bacterial DNA that stimulate the immune system's wound healing processes. Without these signals, the rate of wound healing is diminished.

The present technology provides a means of improving the activity of topical antibiotics by supplementing the antibiotic formulation with immunostimulatory oligodeoxynucleotides (ODN). These ODN express the CpG motifs present in bacterial DNA and safely mimic the immune stimulation induced by bacterial DNA. The formulation may be applied directly to a wide variety of wounds to skin (such as traumatic, burn, or surgical wound, or the eyes (such as corneal abrasions) to effectively eliminate infection and stimulate rapid healing of the wound**.**

Potential Commercial Applications:

- Topical antibiotic
- Use for accelerated wound healing for burn patients, patients with major surgeries and wounds.

Competitive Advantages:

- Eliminates wound site bacteria while retaining immune stimulating properties that promote faster wound healing

Development Stage: Pre-clinical, *in vivo* animal data available

Patent Status: US Provisional Application No. 61/639,688 filed 27 April 2012.

Related technology: NIH Ref. # E-242-2007/0 U.S. Patent Application No. 12/205,756 filed 05 Sep 2008

Publications:

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2. Sato T, et al. Accelerated wound healing mediated by activation of Toll-like receptor 9. Wound Repair Regen. 2010 Nov-Dec;18(6):586-93. [PMID 20946144]
3. Yamamoto M, et al. The acceleration of wound healing in primates by the local administration of immunostimulatory CpG oligonucleotides. Biomaterials. 2011 Jun;32(18):4238-42. [PMID 21421264]

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